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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/498,893	02/07/2000	Steven A. Gronemeyer	ST97001CI1(209-US-CI1)	9438
34408	7590	04/21/2005	EXAMINER	
THE ECLIPSE GROUP 10453 RAINTREE LANE NORTHRIDGE, CA 91326			ODOM, CURTIS B	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/498,893

Applicant(s)

GRONEMEYER, STEVEN A.

Examiner

Curtis B. Odom

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 14, 15, 17-24, 26-42 and 44 is/are rejected.
- 7) ☒ Claim(s) 4, 13, 16, 25 and 43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 11/8/2004 have been fully considered but they are not persuasive. Claims 30-38 are still directed to non-statutory subject matter. The claims are directed toward a computer data signal embodied in a carrier wave which is simply a signal. Even though the signal may be employed to conform a device such a computer processor to perform multiple functions, it is the processing device, not the computer data signal, which performs the functions. The signal falls into the category of Nonfunctional Descriptive Material.

See for example MPEP § 2106 IV.B.1. (b) which states that

The policy that precludes the patenting of nonfunctional descriptive material would be easily frustrated if the same descriptive material could be patented when claimed as an article of manufacture. For example, music is commonly sold to consumers in the format of a compact disc. In such cases, the known compact disc acts as nothing more than a carrier for nonfunctional descriptive material. The purely nonfunctional descriptive material cannot alone provide the practical application for the manufacture.

The signal is functionally equivalent to the compact disc in that it is nothing more than a carrier for nonfunctional descriptive material (1's and 0's). The nonfunctional material, or the signal for that fact, cannot alone provide the practical application for the manufacture. Without a communications device, the signal is nonfunctional, it produces or manufactures nothing. Thus, a claim directed toward a signal is deemed non-statutory subject matter.

*Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 30-38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 30-38 are directed towards a data signal. Note this data signal merely consists of "1" and "0" to represent the coded signal. It does not fall under the category of a method, apparatus, product, or composition of matter. The signal falls into the category of Nonfunctional Descriptive Material. See for example MPEP § 2106 IV.B.1. (b) which states that

The policy that precludes the patenting of nonfunctional descriptive material would be easily frustrated if the same descriptive material could be patented when claimed as an article of manufacture. For example, music is commonly sold to consumers in the format of a compact disc. In such cases, the known compact disc acts as nothing more than a carrier for nonfunctional descriptive material. The purely nonfunctional descriptive material cannot alone provide the practical application for the manufacture.

The signal is functionally equivalent to the compact disc in that it is nothing more than a carrier for nonfunctional descriptive material (1's and 0's). The nonfunctional material, or the signal for that fact, cannot alone provide the practical application for the manufacture. Without a communications device, the signal is nonfunctional, it produces or manufactures nothing. Thus, a claim directed toward a signal is deemed non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9, 10, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Krasner (U.S. Patent No. 6, 289, 041).

Regarding claim 9, Krasner discloses a method for processing communication data comprising:

receiving (Fig. 4, column 5, lines 37-50) signal data;

applying (Fig. 4, blocks 404 and 406, column 5, lines 28-65) a Doppler shift correction value to the signal data;

receiving (Fig. 4, block 408, column 8, lines 19-49) a code signal (PN signal); and

determining (Fig. 4, block 408, column 8, lines 19-49) a correlation between the Doppler shifted signal data and the code signal in a time domain.

Regarding claim 10, which inherits the limitations of claim 9, Krasner discloses applying a Doppler shift correction value to the signal data comprises complex mixing at least a portion of the signal data with Doppler shift correction value (Fig. 4, block 404, column 5, lines 37-50).

Regarding claim 14, which inherits the limitations of claim 9, Krasner discloses the correlation between the Doppler shifted signal data and the code signal comprises processing the

Art Unit: 2634

Doppler shifted signal data and the code signal with a matched filter processor (Fig. 4, block 408, column 8, lines 19-49).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5, 7, 8, 11, 15, 17-24, 26, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (U. S. Patent No. 6, 289, 041).

Regarding claim 1, Krasner discloses a system (Fig. 4) for processing communication data from a code signal input (PN signal), the system comprising:

a signal sampler (not shown, column 5, line 66-column 6, lines 16, wherein the sampler produces the original sample points, 2 samples per chip) operable to receive signal data;

a Doppler shift system (Fig. 4, blocks 428, column 5, lines 28-65) operable to provide a Doppler shift correction value ;

a time domain signal processor (Fig. 4, block 408, column 8, lines 19-49) in signal communication with the signal sampler, the Doppler shift system and the code signal input, the time domain signal processor operable to determine a correlation between the shifted signal and the code signal input (PN signal).

Krasner does not disclose the time domain signal processor is operable to shift the signal by the Doppler correction value.

However, Krasner does disclose a digital frequency translation circuit and digital resampler (Fig. 4, elements 404 and 406) operable to shift samples by a Doppler correction value (column 5, lines 28-65). Krasner also discloses that the procedure of shifting the signal can be incorporated into the time domain signal processor (Fig. 4, block 408, column 6, lines 17-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the device of Krasner is still functionally equivalent to the claimed invention even though Krasner discloses the operation of shifting the signal by a Doppler correction value is performed outside of the time domain signal processor because the operation of shifting is still performed before the correlation operation, so that the correlation is performed between a shifted signal data and the code signal input. Thus, claim 1 does not constitute patentability.

Regarding claim 2, which inherits the limitations of claim 1, Krasner discloses the code signal input is a CDMA signal (column 5, lines 19-column 6, line 45), wherein GPS is an example application of DS-CDMA.

Regarding claim 3, which inherits the limitations of claim 1, Krasner discloses the time domain signal processor is a matched filter processor (Fig. 4, block 408, column 8, lines 19-49).

Regarding claim 4, which inherits the limitations of claim 1, Krasner discloses the Doppler shift system further comprises a Doppler shift generator (Fig. 4, block 428, column 5, lines 51-65), wherein the microcontroller generates a Doppler shift (element 430, Doppler sample rate correction).

Art Unit: 2634

Regarding claim 7, which inherits the limitations of claim 1, Krasner does not disclose the Doppler shift system is coupled to the time domain signal processor by a data bus. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a bus is simply one of many devices used to communicate signals or messages between different components of a device. Thus, implementing a bus to couple the Doppler shift system to the time domain signal processor would not change the functionality of the device as disclosed by Krasner. Thus, claim 7 does not constitute patentability.

Regarding claim 8, which inherits the limitations of claim 1, Krasner discloses the signal sampler receives the signal data from a radio frequency receiver (column 5, lines 19-column 6, line 45), wherein a GPS receiver is a radio frequency receiver.

Regarding claim 11, which inherits the limitations of claim 9, Krasner discloses receiving the Doppler shift correction value and complex mixing at least a portion of the signal data with the Doppler shift correction (Fig. 4, block 404, column 5, lines 37-50).

Krasner does not disclose receiving the Doppler shift correction over a data bus. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a bus is simply one of many devices used to communicate signals or messages between different components of a device. Thus, implementing a bus to communication the Doppler shift correction value would not change the functionality of the device as disclosed by Krasner. Thus, claim 11 does not constitute patentability.

Regarding claim 15, Krasner discloses a system (Figs. 4 and 9) for processing radio frequency data comprising:



a signal sample receiver (not shown, column 5, line 66-column 6, lines 16, wherein the sampler produces the original sample points, 2 samples per chip) operable to receive signal data;

a Doppler shift corrector (Fig. 4, blocks 428, column 5, lines 28-65) operable to provide a Doppler shift correction value;

a code signal receiver (Fig. 4, and Fig. 6A, element 612, column 8, lines 19-54) operable to receive a code signal;

a processor (Fig. 4, block 408, column 8, lines 19-49) coupled to the signal sample receiver, the Doppler shift corrector, and the code signal receiver, the processor operable to determine a correlation between the Doppler shifted signal and the code signal (PN signal); and

a signal processor (Fig. 9, block 400b, column 13, lines 31-50) coupled to the signal sample receiver, the signal processor operable to process the signal data to extract encoded data.

Krasner does not disclose the processor is operable to shift the signal by the Doppler correction value.

However, Krasner does disclose a digital frequency translation circuit and digital resampler (Fig. 4, elements 404 and 406) operable to shift samples by a Doppler correction value (column 5, lines 28-65). Krasner also discloses that the procedure of shifting the signal can be incorporated into the processor (Fig. 4, block 408, column 6, lines 17-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the device of Krasner is still functionally equivalent to the claimed invention even though Krasner discloses the operation of shifting the signal by a Doppler correction value is performed outside of the processor because the operation of shifting is still performed before the correlation

operation, so that the correlation is performed between a shifted signal data and the code signal input. Thus, claim 15 does not constitute patentability.

Regarding claims 17-19, which is assumed inherit the limitations of claim 15, Krasner does not disclose implementing the system in a computer code on a computing processor of a CDMA receiver, implementing the system on a semiconductor device, or implementing the system in an application-specific integrated circuit. However, it would have obvious to one of ordinary skill in the art at the time the invention was made that device of Krasner would perform the same function no matter where the device is implemented. Thus, implementing the device on different platforms is deemed a design choice and does not constitute patentability.

Regarding claim 20, which is assumed inherits the limitations of claim 15, Krasner discloses the processor is a time domain signal processor (Fig. 6A, column 8, lines 19-54).

Regarding claim 21, which is assumed inherits the limitations of claim 15, Krasner does not disclose the processor is a frequency domain processor. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the processor of Krasner could have performed operations in the frequency domain without changing the functionality of the device. The results of the operations would be the same except the operation would be performed using frequency instead of time. In order to convert from the time domain to the frequency domain, one can simply use the following equation:  $\text{Frequency} = 1/\text{Time}$ . Thus, claim 21, does not constitute patentability.

Regarding claims 22-24, 26, 28, and 29 the claimed apparatus included features corresponding to the above rejection of claims 1-3, 5, 7 and 8 which is applicable hereto.

Art Unit: 2634

8. Claims 6, 12, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (U. S. Patent No. 6, 289, 041) in view of Cahn et al. (previously cited in Office Action 5/7/2004).

Regarding claims 6, 12, and 27, Krasner discloses complex mixing at least a portion of the signal data with the Doppler shift correction value (Fig. 4, block 404, column 5, lines 37-50); but Krasner does not disclose receiving Doppler shift correction values from a lookup table with stored precomputed Doppler shift correction values.

However, Krasner does disclose register bank which stores pre/post detection data and a microcontroller which generates values such as the Doppler shift correction value based on data from the register bank (Fig. 4, blocks 418 and 428, column 7, line 57-column 8, line 17). Chan et al. discloses a Doppler shift system comprising a lookup table with stored precomputed Doppler shift correction values (Fig. 9, block 105, column 17, lines 26-40). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the register bank of Krasner with the lookup table as described by Cahn et al. in order to reduce the complexity of the operations and circuitry of the register bank and microcontroller by not having to perform a Doppler correction calculation for every received signal. For certain signals, the Doppler correction value could be obtained through simply obtaining the value through a lookup table.

9. Claims 39, 40, 41, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (U. S. Patent No. 6, 289, 041) in view of Langberg et al. (U.S. Patent No. 5, 852, 630).

Art Unit: 2634

Krasner discloses all of the subject matter as described in the previous rejection (see rejection of claims 9, 10, 11 and 14) except for the method written as a computer program product with a computer readable storage medium.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium. The computer readable medium is an electronic, magnetic, optical, or other physical device or means that can contain or store a computer program for use by or in connection with a computer-related system or method (note column 3, lines 51-65). One skilled in the art at the time the invention was made would have clearly recognized that the method of Krasner would have been implemented into software. The implemented software would perform the same function of the hardware for less expense, greater adaptability, and greater flexibility. Therefore, it would have been obvious to have used the software in Krasner as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

10. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (U. S. Patent No. 6, 289, 041) in view of Cahn et al. (previously cited in Office Action 5/72004) and in further view of Langberg et al. (U.S. Patent No. 5, 852, 630).

Regarding claim 44, Krasner and Cahn et al. disclose all the limitations of claim 42 (see rejection of claim 27), except for the method written as a computer program product with a computer readable storage medium.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-

Art Unit: 2634

readable medium. The computer readable medium is an electronic, magnetic, optical, or other physical device or means that can contain or store a computer program for use by or in connection with a computer-related system or method (note column 3, lines 51-65). One skilled in the art at the time the invention was made would have clearly recognized that the method of Krasner and Cahn et al. would have been implemented into software. The implemented software would perform the same function of the hardware for less expense, greater adaptability, and greater flexibility. Therefore, it would have been obvious to have used the software in Krasner and Cahn et al. as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

#### ***Allowable Subject Matter***

11. Claims 4, 13, 16, 25, and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gallagher (U. S. Patent No. 5, 440, 311) and Simon et al. (U. S. Patent No. 5, 007, 068) disclose compensating for a Doppler shift before detection of a signal.


Art Unit: 2634

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom  
April 15, 2005



**STEPHEN CHIN**  
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